

Listing of Claims:

Claims 1-6 (canceled)

Claim 7 (currently amended): A toothbrush according to claim ~~46~~ 34 wherein said predetermined threshold level of force in the range of about two to twelve ounces.

Claim 8 (original): A toothbrush according to claim 7 wherein said predetermined threshold level of force is about six ounces.

Claim 9 (canceled)

Claim 10 (withdrawn): A toothbrush according to claim 9 wherein said hinge further comprises at least one connecting element coupling said handle and said head.

Claim 11 (withdrawn): A toothbrush according to claim 9 wherein said spring element is a bi-stable spring having a separate first and second positions corresponding respectively to said first and second orientations of said head with respect to said handle, said bi-stable spring, when said force exceeding said threshold is applied to said head, snaps said head to said second orientation and maintains said head at said second orientation until said head is manually pushed forward until said spring snaps said head back to said first orientation.

Claim 12 (withdrawn): A toothbrush according to claim 11 wherein said threshold level of force is substantially the same for causing said bi-stable spring to snap from its first position to its second position and for causing said bi-stable spring to snap from its second position to its first position.

Claim 13 (withdrawn): A toothbrush according to claim 1 wherein said handle and head comprise a single continuous molded product.

Claims 14-18 (canceled)

Claim 19 (withdrawn): A toothbrush according to claim 9 wherein said hinge comprises a pre-stressed bi-stable spring having two alternative shapes, said spring in its prestressed state being generally stiff and tending to stay in such state until a force exceeding a predetermined threshold level is applied to said spring which causes it to snap to its other shape, said spring coupled to said head and to said handle, whereby

said head automatically pivots to its second orientation when a force exceeding said threshold level force is applied thereto.

Claim 20 (withdrawn): A toothbrush according to claim 19 wherein said head automatically returns to its first orientation when a force exceeding said threshold force is applied to said head in said first direction.

Claim 21 (withdrawn): A toothbrush according to claim 20 wherein said handle has a central longitudinal axis, and said bi-stable spring comprises a central strip generally parallel to said handle axis and two tension strips adjacent and generally parallel to said central strip, said central strip being resilient and in compression and having a bow configuration.

Claim 22 (withdrawn): A toothbrush according to claim 20 wherein each of said tension strips is bendable in the general area of their connection to said head.

Claim 23 (withdrawn): A toothbrush according to claim 19 wherein said hinge comprises a bi-stable spring formed as an elongated resilient dish-shaped element having a generally concave configuration and a pair of tension strips adjacent and generally parallel to said spring element, said spring element being in compression with its distal end rigidly extending from said head.

Claim 24 (withdrawn): A toothbrush according to claim 23 wherein each of said tension strips is bendable in the general area of its connection to said head.

Claim 25 (cancel): A toothbrush according to claim 31 wherein said hinge comprises a yoke at said distal end of said handle, a tongue at said proximal end of said head, a pivot axis extending through said yoke and tongue, whereby said head is movable between two angular positions, said hinge further comprising restraining means releasably restraining said tongue in at least one of said positions relative to said yoke.

Claim 26 (withdrawn): A toothbrush comprising a handle, a head with bristles and a neck interconnecting said handle and said head in a predetermined first angular relationship, said head being bendable relative to said handle about a bend axis in said neck, said neck having a predetermined stiffness wherein said neck resists bending of said head relative to said handle, said neck being bendable about said

bend axis to a second angular relationship different from said first angular relationship and back again when a force is applied to said head that overcomes said stiffness of said neck.

Claims 27-30 (canceled)

Claim 31 (Cancel): A toothbrush comprising:

a- a handle part having proximal and distal ends and a longitudinal axis therebetween,

b- a head part having proximal and distal ends, a longitudinal axis therebetween and a set of bristles at said distal end, said bristles having exposed tip ends extending in a frontward direction,

c- a hinge connecting said distal end of said handle part to said proximal end of said head part,

said head part having a first orientation with respect to said handle part for toothbrush to be used in a normal state with said bristles extending generally transversely of the longitudinal axis of said head part,

said hinge including catch means for releasably holding said head part in said first orientation,

said catch means adapted to release said head part on application of a force exceeding a predetermined threshold level in a rearward direction onto said tip ends of said bristles and transferred to said head part, at which time said released head part can flop freely in various orientations different from said first orientation.

Claim 32 (currently amended). A toothbrush according to claim 46 ~~31~~ wherein said released head part is manually movable back to said use position ~~first orientation~~, at which time said ~~catch~~ restraining means will automatically engage and releasably hold said head part in said use position ~~first orientation~~.

Claim 33 (cancel). A toothbrush according to claim 32 wherein said catch means comprises a spring-biased detent on one of said handle and head parts and a recess into which said spring-biased detent extends in the other of said handle and head parts.

Claim 34. (currently amended) A toothbrush according to Claim 46 ~~31~~

wherein said head part is connected to said handle part only by said hinge.

Claim 35 (withdrawn): A motorless toothbrush comprising:

a- a handle part having proximal and distal ends and a longitudinal axis therebetween,

b- a head part having proximal and distal ends, a longitudinal axis therebetween and a set of bristles at said distal end, said bristles having exposed tip ends extending in a frontward direction,

c- a hinge connecting said distal end of said handle part to said proximal end of said head part, with said head part connected to said handle part only by said hinge,

said head part having a first orientation with respect to said handle part for use as a normal toothbrush with said bristles extending generally transversely of the longitudinal axis of said head part, and a second orientation angled rearward from said first orientation,

said hinge comprising a bi-stable spring element having first and second conditions causing said head part to flip between said first and second orientations respectively;

said bi-stable spring element adapted to urge said head part to move to and remain in one or the other of said two orientations, said bi-stable spring element flipping from said first condition to said second condition upon application of a force (i) exceeding a predetermined threshold level in a rearward direction onto said tip ends of said bristles and (ii) transferred to said head part, at which time said head part is biased by spring means to flip to and remain in said second orientation.

Claim 36 (withdrawn) A toothbrush according to Claim 35 where said second orientation is angled at least 10 degrees rearward from said first orientation.

Claim 37 (withdrawn) A toothbrush according to Claim 35 wherein said head part is manually movable from said second orientation, upon application of a force exceeding a predetermined threshold level to said head part in said forward direction to said first orientation, at which time said head part would be biased by said spring element to flip to and remain in said first orientation.

Claim 38 (cancel): A method of reducing the risk of damaging tooth enamel and gums from brushing of a person's teeth with a toothbrush, comprising:

a- providing a toothbrush including a handle part having proximal and distal ends and a longitudinal axis therebetween, and a head part having proximal and distal ends, a longitudinal axis therebetween and a set of bristles at said distal end and extending generally transversely of the longitudinal axis of said head part, said bristles having exposed tip ends extending in a frontward direction,

b- providing a hinge connecting said distal end of said handle part to said proximal end of said head part,

said head part having a first orientation with respect to said handle part for said toothbrush to be used in a normal state with said bristles extending generally transversely of the longitudinal axis of said head part,

c- providing on said hinge a catch means for releasably holding said head part in said first orientation, and

d- configuring said hinge such that upon application of a force (i) exceeding a predetermined threshold level in a rearward direction onto said tip ends of said bristles and (ii) transferred to said head part, said catch means will release said head part to flop freely in various orientations different from said first orientation.

Claim 39 (cancel): A method of teaching a person how to avoid applying pressure of an unsafe magnitude to teeth and gums while brushing the person's teeth with a toothbrush, comprising:

a- providing a motorless toothbrush including a handle part having proximal and distal ends and a longitudinal axis therebetween, and a head part having proximal and distal ends, a longitudinal axis therebetween and a set of bristles at said distal end and extending generally transversely of the longitudinal axis of said head part, said bristles having exposed tip ends extending in a frontward direction,

b- providing a hinge connecting said distal end of said handle part to said proximal end of said head part,

said head part having a first orientation with respect to said handle part for toothbrush to be used in a normal state with said bristles extending generally

transversely of the longitudinal axis of said head part,

c- providing on said hinge a catch means for releasably holding said head part in said first orientation, and

d- configuring said hinge such that upon application of a force (i) exceeding a predetermined threshold level in a rearward direction onto said tip ends of said bristles and (ii) transferred to said head part, said catch means will release said head part to flop freely in various orientations different from said first orientation.

Claim 40 (withdrawn): A method of reducing the risk of damaging tooth enamel and gums from brushing of a person's teeth with a toothbrush, comprising:

a- providing a motorless toothbrush including a handle part having proximal and distal ends and a longitudinal axis therebetween, and a head part having proximal and distal ends, a longitudinal axis therebetween and a set of bristles at said distal end and extending generally transversely of the longitudinal axis of said head part, said bristles having exposed tip ends extending in a frontward direction,

b- providing a hinge connecting said distal end of said handle part to said proximal end of said head part, with said head part connected to said handle part only by said hinge,

said head part having a first orientation with respect to said handle part for toothbrush to be use as a normal toothbrush with said bristles extending generally transversely of the longitudinal axis of said head part, and a second orientation angled rearward from said first orientation,

c- forming said hinge as a bi-stable spring element having first and second conditions causing said head part to flip between said first and second orientations respectively, and

d- configuring said bi-stable spring element to urge said head part to move to and remain in one or the other of said two orientations, said bi-stable spring element flipping from said first condition to said second condition upon application of a force (i) exceeding a predetermined threshold level in a rearward direction onto said tip ends of said bristles and (ii) transferred to said head part, at

which time said head part is biased by spring means to flip to and remain in said second orientation.

Claim 41 (cancel): A ~~motorless~~ toothbrush comprising:

a- a handle part having proximal and distal ends and a longitudinal axis therebetween,

b- a head part having proximal and distal ends, a longitudinal axis therebetween and a set of bristles at said distal end, said bristles having exposed tip ends extending transversely of said head part's longitudinal axes in a frontward direction,

c- a hinge connecting said distal end of said handle part to said proximal end of said head part,

said head part being pivotable about said hinge between relative to said handle part,

said hinge including catch means for releasably holding said head part in said first orientation,

said catch means adapted to release said head part to move from said first to said second orientation upon an application of force exceeding a predetermined threshold level in a rearward direction onto said tip ends of said bristles and transferred to said head part, said catch further adapted to releasably restrain said head part in said second orientation,

said head part in said first orientation having its longitudinal axis generally aligned with said longitudinal axis of said handle part,

said head part in said second orientation having its longitudinal axis inclined rearward of said handle's longitudinal axis by at least 10°.

Claim 42 (presently amended): A ~~motorless~~ toothbrush according to claim ~~46~~ ~~47~~ wherein said head part's longitudinal axis in said second orientation is inclined rearward of said handle's longitudinal axis by about 20°.

Claim 43 (presently amended): A ~~motorless~~ toothbrush according to claim ~~47~~ ~~44~~ wherein said predetermined threshold level of force is in the range of about 2 to 12 ounces.

Claim 44 (presently amended): A ~~motorless~~ toothbrush according to claim ~~46~~ 41 wherein said force is about six ounces.

Claim 45 (withdrawn): A motorless toothbrush according to claim 41, wherein said catch means comprises a resilient spring element extending from one of said handle and head parts and releasably engaging the other.

Claim 46 (new): A toothbrush comprising:

a- a handle part having proximal and distal ends and a longitudinal axis therebetween, the distal end of the handle part including a hinge yoke defined by a pair of spaced walls;

b- a head part having proximal and distal ends, a longitudinal axis therebetween and a set of bristles having exposed tip portions extending in a forward direction;

c- the proximal end of the head part being received between the spaced walls of the hinge yoke and further wherein the head part is coupled to the handle part to move about a pivot axis, the proximal end of the head part including a retaining means in the form of a detent or a spring-biased ball, said retaining means being spaced from the pivot axis at the proximal end of the head part, the distal end of the handle part further including means in the form of a single recess or hole for cooperating with the retaining means of the head part to retain the head part in a normal use position relative to the handle part, the head part in the use position being oriented at a predetermined first angle relative to the longitudinal axis of the handle part with the head part remaining in the use position until the application of a predetermined excessive force to the bristles in a rearward direction; and,

d- upon the application of the predetermined threshold level of force to the bristles, the head part moves from the normal use position about the pivot axis to a second position at an acute angle inclined in the rearward direction relative to the longitudinal axis of the handle part, the cooperating means of the handle part and head part being limited to the normal use position such that the head part may be free to flop backward from the normal use position to the second position, the head part being entirely unrestrained between the two positions such that the

toothbrush is rendered inoperative upon the application of excessive force to the bristles.

Claim 47 (new): A toothbrush comprising:

a- a handle part having proximal and distal ends and a longitudinal axis therebetween, the distal end of the handle part including a hinge yoke defined by a pair of spaced walls;

b- a head part having proximal and distal ends, a longitudinal axis therebetween and a set of bristles having exposed tip portions extending in a forward direction;

c- the proximal end of the head part being received between the spaced walls of the hinge yoke and further wherein the head part is coupled to the handle part to move about a pivot axis, the proximal end of the head part including a retaining means in the form of a detent or a spring-biased ball, said retaining means being spaced from the pivot axis at the proximal end of the head part, the distal end of the handle part further including means in the form of a pair of spaced recesses or holes for cooperating with the retaining means of the head part to retain the head part in one of two positions, the head part being retained in a first normal use position relative to the handle part when the retaining means of the head part is engaged with one of the recesses or holes of the handle part, the head part in said use position being oriented at a predetermined first angle relative to the longitudinal axis of the handle part with the head part remaining in said use position until the application of a predetermined excessive force to the bristles in a rearward direction; and

d- upon application of the predetermined threshold level of force to the bristles, the head part moves from said normal use position about the pivot axis to a second and inoperative position at an acute angle inclined in the rearward direction relative to the longitudinal axis of the handle part, the head part being retained in the second position by engagement of the head part retaining means with the other of the recesses or holes of the handle part, the cooperating means of the handle part

and head part being limited to only the first and second positions such that the head part is entirely unrestrained between the two positions.

Claim 48 (new): A toothbrush according to claim 47 wherein said head part's longitudinal axis in said second orientation is inclined rearward of said handle's longitudinal axis by about 20°.

Claim 49 (new): A toothbrush according to claim 47 wherein said force is about six ounces.